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## (54) IMPROVEMENTS RELATING TO SCREWDRIVERS

(71) I, GERALD WILSON, of 30 Rokeby Avenue, Redland, Bristol 6, a British Subject, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to screwdrivers.

One of the problems in driving screws is holding the screw in position while the initial turns are made, particularly in awkward and cramped corners. Also, when removing a screw it is often important that it be caught as it finally comes loose.

There has already been proposed an attachment which will grip a screw in an aligned position with a screwdriver shaft. It takes the form of a spring steel sleeve that fits on the shaft with a jaw arrangement consisting of three equiangularly arranged fingers projecting beyond the blade. These fingers are splayed out at their ends so that the head of the screw can snap into position, when pressed in the direction of the shaft, to be gripped by the fingers. This arrangement has several disadvantages, and the structure is expensive and complex to make. It can fit only screwdrivers with a shank of a particular length and diameter, and so separate attachments have to be provided for a range of screwdrivers. Also, the jaws only grip the head of the screw, which therefore has a tendency to wobble.

It is an object of this invention to provide an attachment for screwdrivers which will hold a screw firmly and yet be easily engaged and disengaged, and which can be fitted to a range of screwdrivers.

According to the present invention there is provided a screw gripping attachment for screwdrivers comprising a tubular member integrally moulded from plastics material, having at one end spring jaws for embracing the head and engaging the shank of a screw, and towards the other end portions projecting inwardly in relation to the maximum internal diameter of said member to provide spring grips for engaging the shank of a screwdriver, the springiness of the jaws and the inwardly projecting portions being pro-

vided by the resiliency of the plastics material.

The inwardly projecting portions may take the form of a collet. This may have a substantial axial length for engaging the screwdriver shaft. Alternatively, two or even more collets can be spaced along the member, and each of these need only have point contact with the shaft. With either arrangement, the attachment is held in firm alignment with the screwdriver shaft.

In another preferred embodiment the inwardly projecting portions are vanes. Conveniently, the vanes are equispaced around the axis of the member, extend parallel thereto, but are not coincident therewith.

Preferably, the jaws are a pair and the opposing jaw extremities may have inwardly extending flanges, notched to embrace a screw shank. The jaws may be spaced apart behind their opposing extremities to allow for lateral entry of a screw head, and to assist this the flanges can be chamfered to provide an easy passage for the screw shank.

There may also be provided a ferrule sleeved over the jaws and movable along said member to tighten the grip of the jaws on a screw. The member is preferably adapted not to allow the ferrule to escape towards said other end.

For a better understand of the invention, some constructional forms will now be described, by way of example, with reference to the accompanying drawing, in which:—

Figure 1 is a perspective view of a screwdriver attachment according to the invention.

Figure 2 is an end view in the direction A of Figure 1,

Figure 3 is a side view of another screwdriver attachment according to the invention, and

Figure 4 is a section on the line IV—IV of Figure 3.

The screwdriver attachment of Figures 1 and 2 is a tubular member made from plastics material that will have good inherent resiliency when set. Towards one end, it is formed with a collet 1 which is of reduced diameter compared with the main

body of the member. This collet portion has three axially parallel bars equiangularly spaced and providing screwdriver shank gripping portions of substantial length, sufficient to prevent the attachment tilting when fitted on the screwdriver. This is done by the blade being entered at end 2 until the collet portion 1 engages around the shank, and the blade is towards the other end. This other end is formed as a pair of jaws 3 which provide an elongated gap at each side to give an easy lateral entry for a screw head. The ends of the jaws are formed with inwardly projecting flanges 4 centrally recessed or notched at 5 as best seen in Figure 2. In the relaxed state, the opposed flanges 4 abut or almost meet each other at either side of the recesses, and radially outwards of the engaging or almost engaging portions the flanges are chamfered, as at 6, to provide an easy entry and guide for the shank of a screw as it is snapped into place.

A screw 7 is shown in outline in Figure 1 with the head held between the jaws "behind" the flanges 4, with the notches 5 engaging around the shank of the screw "below" the head. The screw will be held quite firmly in alignment with the attachment and therefore with the shaft of the screwdriver.

Although the notches are shown as being angled, they can be curved, or otherwise differently shaped. Instead of having one elongate collet portion 1 there may be two shorter ones spaced along the attachment. This will also provide a firm grip that will not allow

driver shanks) entered in that end portion 10. The rear edges of the vanes (those visible in Figure 4) are preferably angled to the radial plane, such as sectional plane IV—IV, the slope being forwards from their radially outer ends to give easy entry for a screwdriver.

Sleeved over the forward end of the attachment is a ferrule 12. Its internal diameter is less than the outside diameter of the end portion 10 so that it cannot escape to the rear, or that end portion may have a projecting lug to act as a stop. The ferrule 12 can freely slide along the jaws 8 when there is no screw being gripped.

In order to grip a screw for driving, the attachment is fitted over the blade of the screwdriver so that its tip is between the jaws, the vanes 11 gripping the leading part of the screwdriver shank. The ferrule is withdrawn to the rear and a screw laterally entered and gripped as with the first embodiment. The grip on the screw is then intensified, if desired, by moving the ferrule forwards, which urges the jaws together. The mutual friction between the ferrule and jaws is sufficient to ensure that the ferrule does not slip back to the rear.

It will be understood that the ferrule is optional, and it could also be applied to the first embodiment.

The ferrule may be knurled externally to improve the grip offered. It may also be knurled or serrated internally, or the main body of the attachment may be similarly roughened externally, or both may be so

in claim 4, wherein the vanes are equispaced around the axis of said member, extend parallel thereto, but are not co-incident therewith.

5 6. A screwdriver attachment as claimed in any preceding claim, wherein the jaws are an opposed pair.

10 7. A screwdriver attachment as claimed in claim 6, wherein the opposing jaw extremities have inwardly extending flanges, notched to receive a screw shank.

15 8. A screwdriver attachment as claimed in claim 7, wherein the jaws are spaced apart behind their opposing extremities to allow for lateral entry of a screw head.

9. A screwdriver attachment as claimed in claim 8, wherein the sides of said flanges at the extremities are chamfered to permit easy passage of the screw shank during

lateral entry into engagement with the jaws. 20

10. A screwdriver attachment as claimed in any preceding claim, and further comprising a ferrule sleeved over the jaws and movable along said member to tighten the grip of the jaws on a screw. 25

11. A screwdriver attachment as claimed in claim 10, wherein said member is adapted not to allow the ferrule to escape towards said other end.

12. A screw gripping attachment for screwdrivers substantially as hereinbefore described with reference to Figures 1 and 2 or Figures 3 and 4 of the accompanying drawings. 30

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